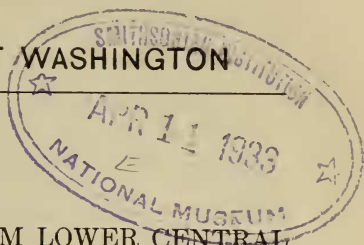


PROCEEDINGS  
OF THE  
BIOLOGICAL SOCIETY OF WASHINGTON



NOTES ON BLIND SNAKES FROM LOWER CENTRAL  
AMERICA.<sup>1</sup>

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In the course of the last few years, thanks to Dr. Thomas Barbour, the Directors of the John Simon Guggenheim Memorial Fellowships, the curators of various museums and Señor Martinez of San Jose, Costa Rica, I have seen 20 specimens of what is usually considered *Helminthophis* from Costa Rica and Panama. Three of these have never been reported on and are in my private collection. The others are: one in the Museum of the University of Michigan; five in the U. S. National Museum; three in the Museum of Comparative Zoölogy; four in the Berlin Museum; one in Paris; one in Vienna; and one in Frankfort. I am aware of no other specimens from these countries in other Museums or mentioned in the literature. This material includes the types of four species.

Amaral in his 1924 paper on this genus (Proc. New England Zoöl. Club, 9, p. 25) regards Costa Rican and Panamanian specimens as representing no less than five species. I, on the other hand, am unable to find more than two species among the 20 specimens I have seen.

I should define these two species as follows:

- A. Prefrontals very large, in contact behind the rostral; ocular narrowly in contact with the third upper labial or separated from it by the subocular; two preoculars, upper large; a supraocular between upper preocular and frontal; ocular not in contact with frontal; upper preocular in contact with 2d labial; lower preocular in contact with 2d and 3d labial; 22 scale rows; whole head white.....*frontalis*
- AA. Prefrontals smaller, not meeting behind rostral; ocular narrowly in contact with 3d upper labial or separated from it by the subocular; two preoculars; a supraocular between ocular and frontal; upper preocular in contact with frontal, not in

<sup>1</sup>Contributions from the Department of Zoölogy, Haverford College, No. 13.

contact with 2d labial; lower preocular in contact with 2d and 3d labials; subocular between ocular and 4th labial; supraocular in contact with a single wide postfrontal, or with the outer of three small postfrontals; 22 scale rows; snout (occasionally whole head) white.....*albirostris*

An explanation of the status of the forms which I consider synonymous follows.

Both Amaral and I agree as to the distinctness of *frontalis*. My own specimen, from San Jose, kindly presented to me by Señor Martinez, agrees beautifully with Peter's figure and with his type. The ocular in my specimen is narrowly in contact with the 3d labial on the right side, and narrowly separated from the 3d labial by the subocular on the left.

Amaral states that *albirostris* has the prefrontal in contact with the 2d labial behind the nasal. This is not true of the types in Berlin. No such statement occurs in Peter's brief Latin description. The statement dates from Boulenger's Catalogue, where it occurs in the description of this species which he considered synonymous with Garman's *emunctus*. I agree in this opinion, but Garman says nothing of the sort about *emunctus*, and it is difficult to imagine what basis Boulenger had for the statement of the prefrontal-2d labial contact, since he had no specimens of either *albirostris* or *emunctus*. The prefrontal in the types of both species is separated from the second labial by the nasal and the lower preocular. The ocular is narrowly in contact with the 3d labial in both types of *albirostris*. One of them has a single wide postfrontal, and the other has this plate divided into three smaller plates.

Amaral says that *canellei* has no subocular, and the third labial widely in contact with the ocular. For the first statement Moquard is the authority. For the second Moquard says the contact is "*assez etroit*" which I take to mean narrowly, not widely. The type in Paris agrees with Moquard's original remark. Moquard, however, did not recognize the subocular as such, but since the ocular is only narrowly in contact with the 3d labial, some scale intervenes part way between them and also cuts off the ocular from the fourth labial. This scale is the subocular. There are three small postfrontals. There is thus no difference in scalation between the types of *albirostris* and the type of *canellei*. The type of *canellei* has the whole head white, and is the only specimen of sixteen seen which has it so.

Amaral considers *emunctus* and *bondensis* as distinct from *albirostris* and *canellei* on the basis of characters which I have just shown do not exist in the types of the two latter. His differences between the two former species I consider purely individual variation. One is the question of a single large postfrontal versus three small postfrontals. Twelve specimens, including a type of *albirostris*, have one large postfrontal; four specimens, including, a type of *albirostris*, the type of *emunctus*, and the type of *canellei*, have three small postfrontals. Two specimens in my own collection, obtained near Panama City, differ in this respect, but are identical in every other way, thus practically repeating the two types of *albirostris*. The

ocular is separated from the 3d labial in the type of *emunctus* only, but the contact in the fifteen other specimens is so narrow that I can not attach much importance to its obviation. This is Amaral's other difference between *emunctus* and *bondensis*. I have not seen the type of *bondensis* (Carnegie Mus. No. 216, Bonda, Colombia), but the description offers no differential characters, and Amaral, who saw it, regards it as conspecific with four Panamanian specimens which I have seen. I therefore regard both *emunctus* and *bondensis* as synonyms of *albirostris*.

There are therefore two species (*not five*) of *Helminthophis* in Central America.

Amaral regards *petersii* from Ecuador as synonymous with *emunctus* (= *albirostris*). I am not so certain of this, as Boulenger's figure of *petersii* shows the ocular in contact with the frontal, which is not the case in any of the specimens I have seen.

I am inclined to follow Peters and Jan in considering the two Central American species as of different genera, because I think they typify significant stages in the degeneration of the head scales from *Anomalepis* to *Typhlops*. *Frontalis* (with two allies) has the prefrontals meeting in the mid-dorsal line back of the rostral. In *albirostris* this is not the case and that species is like *Typhlops* save that the prefrontals are separate from the upper nasals. In *Typhlops* the prefrontal and upper nasal are fused into one large scale.

Synonymies and localities for the two species follow.

*Helminthophis* Peters (1860, Mon. Berl. Acad. p. 517; type *frontalis*).

*Helminthophis frontalis* Peters (*Typhlops* (*Helminthophis*) *frontalis* Peters 1860, l. c.)

C. R.: No locality, Berlin 3925 TYPE, Berlin 3823; San Jose, E. R. Dunn.

Pan.: Boquete, Michigan, 57934.

*Liotyphlops* Peters.

(1881, Sitz. Ges. Nat. Fr. Berlin, p. 69, type *albirostris*; *Rhinotyphlops* Peters 1857, Mon. Berlin Ak. p. 402, type *albirostris*, not *Rhinotyphlops* Fitzinger 1843, Syst. Rept. p. 24, type *lalandii*).

*Liotyphlops albirostris* (Peters). (*Rhinotyphlops albirostris* Peters 1857, l. c.; *Typhlops* (*Idiotyphlops*) *emunctus* Garman 1883, Mem. Mus. Comp. Zool. 8, 3, p. 3; *Helminthophis canellei* Moquard 1903, Bull. Mus. Hist. Nat. 9, p. 212.)

C. R.: No locality, Frankfort 7005a.

Pan.: No locality, M. C. Z. 3971 type *emunctus*, Paris 3189A type *cancelei*, U. S. N. M. 37009, 61989, 82115, Vienna (1), E. R. Dunn (2); Veragua, Berlin 9529 (2) types *albirostris*; Chiriqui, Berlin 8656, U. S. N. M. 23748; Ancon, M. C. Z. 17849, U. S. N. M. 60517; San Miguel I., M. C. Z. 10714.